Mediterranean Outflow Water in the eastern Gulf of Cádiz : pathways and dynamics.

Bellanco M.J.& Sánchez-Leal R.F.

Instituto Español de Oceanografía. Centro Oceanográfico de Cádiz. Cádiz, Spain.

The Mediterranean Outflow Water (MOW), once overcome the Strait of Gibraltar, in its pathway towards the Atlantic,it is faced with the complex seafloor of the Gulf of Cádiz. This abrupt topography influences the pathways of the dense and salty gravity current, that flows under the Eastern North Atlantic Central Water (ENACW) as a bottom-trapped undercurrent, to become a multi-layered, buoyant plume at depths of 800-1300 m past Cape St. Vincent.
This work shows the study of the hydrography of grounds in the eastern Gulf of Cadiz based on 2005-2013 near-bottom CTD observations combined with a repeated series of high-resolution CTD-LADCP observations along a number of standard sections crossing the early MOW. These data provide us a spatial distribution and seasonality variability of thermohaline properties of MOW on the seabed of the northeastern Gulf of Cádiz, and near-bottom velocity data, which allows us determine the strong MOW attachment to the bathymetric features.
This study enables a better understanding of the main MOW pathways, the relationship between these flow paths and the orientation of channels and valleys, as well as, their circulatory dynamic and the balance of forces between Coriolis and centrifugal acceleration associated to these topographic features.

Keywords: Gulf of Cadiz, MOW, pathways, dynamics.